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**National
Benthic Surveillance Project:
Pacific Coast**

**Part II
Technical Presentation
of the Results
for Cycles I to III
(1984-86)**

by
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EXECUTIVE SUMMARY

This report summarizes and interprets the results of the first 3 years of the Pacific Coast phase of the National Benthic Surveillance Project (NBSP), a component of NOAA's National Status and Trends Program. Employing highly uniform sampling protocols and state-of-the-art analytical methods, an extensive database has been developed, which includes detailed information on the distribution of a variety of chemical contaminants. These contaminants include selected aromatic hydrocarbons, PCBs, organochlorine insecticides and metals in surficial sediments and in liver tissue, bile, and stomach contents of selected bottom-feeding fish. Also documented were the prevalences of a variety of presumptive pollution-related liver and kidney lesions in the same target fish species. Of the 31 sites sampled in Alaska, Washington, Oregon, and California, 22 were located in or near urban centers. The results from individual sites should not be viewed as representative of entire embayments; however, the locations of the sites in urban embayments were selected to be as representative as possible of waste inputs from multiple sources.

The overall finding from the NBSP for the years 1984-86 indicated that the highest concentrations of most sediment-associated organic

contaminants and a few toxic metals (e.g., copper and lead) were present in the highly urbanized areas and that many of the organic contaminants were bioaccumulated by indigenous Marine fish species. No correlations between concentrations of most of the measured metals in sediment and in liver tissue of the target fish species were found. Of all the sites sampled, the most contaminated sites were located in San Diego Bay, Commencement Bay (Tacoma), Elliott Bay (Seattle), and San Pedro Bay (Los Angeles/Long Beach). intermediate levels of contaminants were detected at the sites in Santa Monica and San Francisco Bays, whereas the sites in Alaska and Oregon were among the least contaminated of those sampled. The prevalences of most of the detected liver and kidney lesions in bottom-dwelling fish also tended to vary with the degree of urbanization--highest prevalences occurred at the sites with the highest levels of chemical contamination. This finding is similar to that reported for liver lesions in fish from urban sites on the Atlantic Coast, sampled as part of the NBSP. In addition, levels of several chemical contaminants in sediments from many of the urban sites on the Atlantic Coast paralleled, with a few exceptions (e.g., Boston Harbor), concentrations of the same chemicals found in sediments from certain urban sites on the Pacific Coast. The tissue levels of contaminants in fish from highly urbanized sites on the Atlantic Coast, including fish from the Boston Harbor site, were also comparable to those in fish from urban sites on the Pacific Coast.

Overall, the NBSP has been highly successful in generating a comprehensive overview of the present status of environmental quality in coastal waters; however, an evaluation of long-term trends in coastal environmental quality, has not yet been possible. The relatively high variability of many of the measured parameters due to natural variation or patchiness of contaminant distributions in many urban areas dictates that additional data must be collected before attempting trend analyses. Therefore, in the future, the NBSP will generate not only an in-depth assessment of environmental quality of coastal areas in the United States, but also an evaluation of temporal trends in that quality. Such knowledge is essential for effective management of the Nation's highly productive coastal habitats and the resources they support.